

TELECOMMUNICATIONS

WAC		Page
296-32-200	Scope and application.	1
296-32-210	Definitions.	2
296-32-215	Safe place standard.	7
296-32-220	General.	7
296-32-230	Training.	10
296-32-240	Employee protection in public work areas.	11
296-32-250	Tools and personal protective equipment-General.	12
296-32-260	Rubber insulating equipment.	13
296-32-270	Personal climbing equipment.	14
296-32-280	Ladders.	15
296-32-290	Vehicle-mounted material handling devices and other mechanical equipment.	16
296-32-300	Materials handling and storage.	18
296-32-310	Cable fault locating and testing.	19
296-32-320	Grounding for employee protection-Pole lines.	19
296-32-330	Overhead lines.	21
296-32-340	Underground lines and cable vaults.	24
296-32-350	Microwave transmission.	25
296-32-360	Tree trimming-Electrical hazards.	26
296-32-370	Buried facilities-Communications lines and power lines in the same trench.	27

WAC 296-32-200 Scope and application.

- (1) This chapter sets forth safety and health standards that apply to the work conditions, practices, means, methods, operations, installations and processes performed at telecommunications centers and at telecommunications field installations, which are located outdoors or in building spaces used for such field installations. "Center" work includes the installation, operation, maintenance, rearrangement, and removal of communications equipment and other associated equipment in telecommunications switching centers. "Field" work includes the installation, operation, maintenance, rearrangement, and removal of conductors and other equipment used for signal or communication service, and of their supporting or containing structures, overhead or underground, on public or private rights of way, including buildings or other structures.
- (2) These standards do not apply:
 - (a) To construction work, as defined in chapter 296-155 WAC, nor
 - (b) To installations under the exclusive control of electric utilities used for the purpose of communications or metering, or for generation, control, transformation, transmission, and distribution of electric energy, which are located in buildings used exclusively by the electric utilities for such purposes, or located outdoors on property owned or leased by the electric utilities or on public highways, streets, roads, etc., or outdoors by established rights on private property.
- (3) Operations or conditions not specifically covered by this chapter are subject to all the applicable standards contained in chapter 296-24 WAC, general safety and health standards, and chapter 296-800 WAC, the safety and health core rules. Operations which involve construction work, as defined in chapter 296-155 WAC are subject to all the applicable standards contained in chapter 296-155 WAC, safety standards for construction work.

WAC 296-32-200 (Cont.)

- (4) This standard shall augment the Washington state general safety and health standards, general occupational health standards, electrical workers safety rules, and any other standards which are applicable to all industries governed by chapter 80, Laws of 1973, Washington Industrial Safety and Health Act. In the event of any conflict between any portion of this chapter and any portion of any of the general application standards, the provisions of this chapter 296-32 WAC, shall apply.
- (5) In exceptional cases where compliance with specific provisions of this chapter can only be accomplished to the serious detriment and disadvantage of an operation, variance from the requirement may be permitted by the director of the department of labor and industries after receipt of application for variance which meets the requirements of WAC 296-350-700.

[Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-200, filed 05/09/01, effective 09/01/01. Order 76-38, § 296-32-200, filed 12/30/76; Order 75-41, § 296-32-200, filed 12/19/75.]

WAC 296-32-210 Definitions.

- (1) The terms used in these standards shall be interpreted in the most commonly accepted sense consistent with the communications industry. The words **“shall”** and **“must,”** are used to indicate the provisions which are mandatory.
- (2) **“Aerial lifts.”** Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to jobsites above ground:
 - (a) Extensible boom platforms,
 - (b) Aerial ladders,
 - (c) Articulating boom platforms,
 - (d) Vertical towers,
 - (e) A combination of any of the above defined in ANSI A92.2-1969. These devices are made of metal, wood, fiberglass, reinforced plastic (FRP), or other material; are powered or manually operated and are deemed to be aerial lifts whether or not they are capable of rotating above a substantially vertical axis.
- (3) **“Aerial splicing platform.”** This consists of a platform, approximately 3 feet x 4 feet, used to perform aerial cable work. It is furnished with fiber or synthetic ropes for supporting the platform from aerial strand, detachable guy ropes for anchoring it, and a device for raising and lowering it with a handline.
- (4) **“Aerial tent.”** A small tent usually constructed of vinyl coated canvas which is usually supported by light metal or plastic tubing. It is designed to protect employees in inclement weather while working on ladders, aerial splicing platforms, or aerial devices.
- (5) **“Alive or live (energized).”** Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of the earth in the vicinity. The term **“live”** is sometimes used in the place of the term **“current-carrying,”** where the intent is clear, to avoid repetition of the longer term.
- (6) **“Barricade.”** A physical obstruction such as tapes, cones, or “A” frame type wood and/or metal structure intended to warn and limit access to a work area.
- (7) **“Barrier.”** A physical obstruction which is intended to prevent contact with energized lines or equipment, or to prevent unauthorized access to work area.

WAC 296-32-210 (Cont.)

- (8) **“Bond.”** An electrical connection from one conductive element to another for the purpose of minimizing potential differences or providing suitable conductivity for fault current or for mitigation of leakage current and electrolytic action.
- (9) **“Cable.”** A conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).
- (10) **“Cable sheath.”** A protective covering applied to cables.
Note: A cable sheath may consist of multiple layers of which one or more is conductive.
- (11) **“Circuit.”** A conductor or system of conductors through which an electric current is intended to flow.
- (12) **“Clearance.”**
 - (a) The certification by the proper authority that a specified line or piece of equipment is de-energized; that the proper precautionary measures have been taken and that the line or equipment is being turned over to the workers.
 - (b) Separation or protection by the use of protective devices to prevent accidental contact by persons or objects on approach to a point of danger.
- (13) **“Climbing space.”** The vertical space reserved along the side of poles or structures to permit ready access for lineworkers to equipment and conductors located on poles or structures.
- (14) **“Communication lines.”** The conductors and their supporting or containing structures for telephone, telegraph, railroad signal, data, clock, fire, police-alarm, community television antenna and other systems which are used for public or private signal or communication service, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. When communications lines operate at less than 150 volts to ground, no limit is placed on the capacity of the system. Specifically designed communications cables may include communication circuits not complying with the preceding limitations, where such circuits are also used incidentally to supply power to communication equipment.
- (15) **“Communication plant.”** The conductors and their associated equipment required to provide public or private signals or communicative service.
- (16) **“Competent or qualified person.”** A person who is familiar with the construction of, or operation of, such lines and/or equipment that concerns their position and who is fully aware of the hazards connected therewith or one who has passed a journeyman's examination for the particular branch of the trades with which they may be connected. In case of dispute, competency shall be established by a committee appointed by the director or assistant director of the department of labor and industries consisting of representatives of all interested parties.
- (17) **“Conductor.”** A material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current.
- (18) **“Effectively grounded.”** Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the build-up of voltages which may result in undue hazard to connected equipment or to persons.

WAC 296-32-210 (Cont.)

- (19) **“Emergency.”** When an unusual condition exists that endangers life and/or property.
 - (20) **“Energized.”** Electrically connected to a source of potential difference or electrically charged so as to have a potential different from that of the earth or different from that of adjacent conductors or equipment. For the purpose of these rules, potential differences less than 100 volts shall not apply. This definition does not include communication lines of less than 300 volts.
 - (21) **“Equipment.”** A general term which includes materials, fittings, devices, appliances, fixtures, apparatus, and similar items used as part of, or in connection with, a supply or communications installation.
 - (22) **“Crewleader or person-in-charge.”** That person directly in charge of workers doing the work regardless of title.
 - (23) **“Ground (reference).”** That conductive body usually earth, to which an electric potential is referenced.
 - (24) **“Ground (as a noun).”** A conductive connection, whether intentional or accidental, by which an electric circuit or equipment is connected to reference ground.
 - (25) **“Ground (as a verb).”** The connecting or establishment of a connection, whether by intention or accident, of an electric circuit or equipment to reference ground.
 - (26) **“Grounding.”** The act of placing shorts and grounds on conductors and equipment for the purpose of protecting workers from dangerous voltages while working on such lines or equipment.
 - (27) **“Ground tent.”** A small tent usually constructed of vinyl coated canvas supported by a metal or plastic frame. Its purpose is to protect employees from inclement weather while working at buried cable pedestal sites or similar locations.
 - (28) **“Grounded conductor.”** A system or circuit conductor which is intentionally grounded.
 - (29) **“Grounded systems.”** A system of conductors in which at least one conductor or point (usually the middle wire, or the neutral point of transformer or generator windings) is intentionally grounded, either solidly or through a current-limiting device (not a current-interrupting device).
 - (30) **“Grounding electrode conductor (grounding conductor).”** A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode.
 - (31) **“Guard or guarded.”** Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, platforms, or warning signs or devices to remove the possibility of dangerous contact on approach by other persons or objects to a point of danger.
 - (32) **“Insulated.”** Separated from other conducting surfaces by a dielectric substance (including air space) offering a high resistance to the passage of current.
- Note: When any object is said to be insulated, it is understood to be insulated in suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of these standards, uninsulated. Insulating coverings of conductors is one means of making the conductor insulated.*
- (33) **“Insulation (as applied to cable).”** That which is relied upon to insulate the conductor from other conductors or conducting parts or from ground.

WAC 296-32-210 (Cont.)

- (34) **“Joint use.”** The sharing of a common facility, such as a manhole, trench or pole, by two or more different kinds of utilities, (e.g., power and telecommunications).
- (35) **“Ladder platform.”** A device designed to facilitate working aloft from an extension ladder. A typical device consists of a platform (approximately 9" x 18") hinged to a welded pipe frame. The rear edge of the platform and the bottom crossmember of the frame are equipped with latches to lock the platform to ladder rungs.
- (36) **“Ladder seat.”** A removable seat used to facilitate work at an elevated position on rolling ladders in telecommunication centers.
- (37) **“Manhole.”** A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining submersible equipment and/or cable.
- (38) **“Manhole platform.”** A platform consisting of separate planks which are laid across steel platform supports. The ends of the supports are engaged in the manhole cable racks.
- (39) **“Manlift equipment.”** Such types of portable truck-mounted equipment as mechanical, electric or hydraulic ladders and boom-mounted buckets or cages.
- (40) **“Microwave transmission.”** The act of communicating or signaling utilizing a frequency between 1 GHz (gigahertz) and 300 GHz inclusively.
- (41) **“Nominal voltage.”** The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The actual voltage may vary above or below this value.
- (42) **“Pole balcony or seat.”** A balcony or seat used as a support for workers at pole-mounted equipment or terminal boxes. A typical device consists of a bolted assembly of steel details and a wooden platform. Steel braces run from the pole to the underside of the balcony. A guard rail (approximately 30" high) may be provided.
- (43) **“Pole platform.”** A platform intended for use by a worker in splicing and maintenance operations in an elevated position adjacent to a pole. It consists of a platform equipped at one end with a hinged chain binder for securing the platform to a pole. A brace from the pole to the underside of the platform is also provided.
- (44) **“Protection from hazardous voltage.”** The isolation from or de-energizing of equipment to prevent accidental contact by persons or objects on approach to point of danger.
- (45) **“Protective devices.”** Those devices such as rubber gloves, rubber blankets, line hose, rubber hoods or other insulating devices, which are specially designed for the protection of workers.
- (46) **“Public highway.”** Every way, land, road, street, boulevard, and every way or place in the state open as matter of right to public vehicular travel, both inside and outside the limit of cities and towns.
- (47) **“Qualified employee.”** Any worker who by reason of their training and experience has demonstrated an ability to safely perform their duties.
- (48) **“Qualified line-clearance tree trimmer.”** A tree worker who through related training and on-the-job experience is familiar with the special techniques and hazards involved in line clearance.

WAC 296-32-210 (Cont.)

- (49) **“Qualified line-clearance tree-trimmer trainee.”** Any worker regularly assigned to a line-clearance tree-trimming crew and undergoing on-the-job training who, in the course of such training, has demonstrated their ability to perform duties safely at their level of training.
- (50) **“Sheath.”** As applied to sharp tools that effectively covers the tool.
- (51) **“System operator/owner.”** The person or organization that operates or controls the electrical conductors involved.
- (52) **“Telecommunications center.”** An installation of communication equipment under the exclusive control of an organization providing telecommunications service, that is located outdoors or in a vault, chamber, or a building space used primarily for such installations.

Note: Telecommunication centers are facilities established, equipped and arranged in accordance with engineered plans for the purpose of providing telecommunications service. They may be located on premises owned or leased by the organization providing telecommunication service, or on the premises owned or leased by others. This definition includes switch rooms (whether electromechanical, electronic, or computer controlled), terminal rooms, power rooms, repeater rooms, transmitter and receiver rooms, switchboard operating rooms, cable vaults, and miscellaneous communications equipment rooms. Simulation rooms of telecommunication centers for training or developmental purposes are also included.

- (53) **“Telecommunications derricks.”** Rotating or nonrotating derrick structures permanently mounted on vehicles for the purpose of lifting, lowering, or positioning hardware and materials used in telecommunications work.
- (54) **“Telecommunication line truck.”** A truck used to transport workers, tools, and material, and to serve as a traveling workshop for telecommunication installation and maintenance work. It is sometimes equipped with a boom and auxiliary equipment for setting poles, digging holes, and elevating material or workers.
- (55) **“Telecommunication service.”** The furnishing of a capability to signal or communicate at a distance by means such as telephone, telegraph, police and fire-alarm, community antenna television, or similar system, using wire, conventional cable, coaxial cable, wave guides, microwave transmission, or other similar means.
- (56) **“Unvented vault.”** An enclosed vault in which the only penings are access openings.
- (57) **“Vault.”** An enclosure above or below ground which personnel may enter, and which is used for the purpose of installing, operating, and/or maintaining equipment and/or cable which need not be of submersible design.
- (58) **“Vented vault.”** An enclosure as described in subsection (57) of this section, with provision for air changes using exhaust flue stack(s) and low level air intake(s), operating on differentials of pressure and temperature providing for air flow.
- (59) **“Voltage communications.”** Voltage used for electronic communications equipment to which workers or protective equipment may be subjected.
 - (a) **High** means over 600 volts to ground--RMS AC or DC or over 1,000 volts RMS across bare parts.
 - (b) **Medium high** means 151 to 600 volts to ground--RMS AC or DC or 301 to 1,000 volts RMS AC across any bare parts.

WAC 296-32-210 (Cont.)

- (60) **“Voltage electric supply.”** The maximum effective line voltage to which the workers or protective equipment may be subjected.
- (a) **Low** includes voltages from 100 to 750 volts.
 - (b) **High** means those voltages in excess of 750 volts.
- (61) **“Voltage of an effectively grounded circuit.”** The voltage between any conductor and ground unless otherwise indicated.
- (62) **“Voltage of a circuit not effectively grounded.”** The voltage between any two conductors. If one circuit is directly connected to and supplied from another circuit of higher voltage (as in the case of an autotransformer), both are considered as of the higher voltage, unless the circuit of lower voltage is effectively grounded, in which case its voltage is not determined by the circuit of higher voltage. Direct connection implies electric connection as distinguished from connection merely through electromagnetic or electrostatic induction.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-210, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-210, filed 12/30/76; Order 75-41, § 296-32-210, filed 12/19/75.]

WAC 296-32-215 Safe place standard.

- (1) No employer shall require any employee to go or be in any employment or place of employment which is not safe.
- (2) No employer shall fail or neglect:
- (a) Provide safe access to the work site.
 - (b) To provide and use safety devices and safeguards.
 - (c) To adopt and use methods and processes to render the employment and place of employment safe.
 - (d) To do every other thing reasonably necessary to protect the life and safety of employees.

[Order 76-38, § 296-32-215, filed 12/30/76.]

WAC 296-32-220 General.

- (1) Buildings containing telecommunications centers.
- (a) **Illumination.** Lighting in telecommunication centers shall be provided in an amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner.
 - (b) Specific tasks in centers, such as splicing cable and the maintenance and repair of equipment frame lineups, the employer shall install permanent lighting or portable supplemental lighting to attain a higher level of illumination.
 - (c) Refer to WAC 296-800-210 which shall apply as minimum standards of illumination for industrial interiors.
 - (d) **Illumination of field work.** Whenever natural light is insufficient to illuminate the worksite, artificial illumination shall be provided to enable the employee to perform the work safely.

WAC 296-32-220 (Cont.)

- (2) Working surfaces.
 - (a) Working surfaces shall be in conformance with the latest edition of the general safety and health standard WAC 296-24-735 through 296-24-76523, and chapter 296-800 WAC, the safety and health core rule book.
 - (b) Guard rails and toe boards may be omitted on distribution frame mezzanine platforms to permit access to equipment. This exemption applies only on the side or sides of the platform facing the frames and only on those portions of the platform adjacent to equipped frames.
- (3) Working spaces.
 - (a) Space shall be provided for access to all medium high and high voltage equipment.
 - (b) Every structure, new or old, designed for human occupancy shall be provided with exits to permit the prompt escape of occupants in case of fire or other emergency. The means of egress shall be a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consist of three separate and distinct parts; the way of exit access, the exit and the way of exit discharge. A means of egress comprises the vertical and horizontal ways of travel and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, escalators, horizontal exits, courts and yards.
 - (c) "Maintenance aisles," or "wiring aisles," between equipment frame lineups are working spaces and are not a means of egress for purposes of WAC 296-24-550 and 296-800-310.
- (4) Special doors.
 - (a) When blastproof or power actuated doors are installed in specially designed hardsite security buildings and spaces, they shall be designed and installed so that they can be used as a means of egress in emergencies.
 - (b) When high voltage apparatus is isolated in a supplementary enclosure, interlocks shall be provided on all access doors. Warning signs shall be provided, which are visible both when the guard or cover is in place or removed.
- (5) Equipment, machinery and machine guarding.
 - (a) When power plant machinery in telecommunications centers is operated with commutators and couplings uncovered, the adjacent housing shall be clearly marked to alert personnel to the rotating machinery.
 - (b) All power switches on power panels shall be in an open position when they are not controlling an operating circuit. Before opening any power circuit, the load shall be reduced. "Men working" signs, or similar wording shall be placed on switches associated with motors or generators under repair.
 - (c) When working on the brushes of a machine in operation, employees shall use care not to break a circuit. When it is necessary to remove a brush from the holder, the machine shall be shut down.
 - (d) Only fuse pullers specifically designed for that purpose shall be used when replacing cartridge type fuses.

WAC 296-32-220 (Cont.)

- (6) Battery handling.
 - (a) Eye protection devices which provide side as well as frontal eye protection for employees shall be provided when measuring storage battery specific gravity or handling electrolyte, and the employer shall ensure that such devices are used by the employees.
 - (b) The employer shall also ensure that acid resistant gloves and aprons shall be worn for protection against spattering.
 - (c) Facilities for quick drenching or flushing of the eyes and body shall be provided unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities.
 - (d) Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.
 - (e) Electrolyte (acid or base, and distilled water) for battery cells shall be mixed in a well ventilated room. Acid or base shall be poured gradually, while stirring, into the water. Water shall never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte shall never be placed in metal containers nor stirred with metal objects.
 - (f) When taking specific gravity readings, the open end of the hydrometer shall be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.
 - (g) Ventilation, shall be provided to ensure diffusion of the gasses from the battery to prevent the accumulation of an explosive type mixture.
 - (h) Racks and trays shall be substantial and treated to be resistant to the electrolyte.
 - (i) Floors shall be of acid resistant construction or be protected from acid accumulation.
- (7) Hazardous materials.
 - (a) Highway mobile vehicles and trailers stored in garages in accordance with WAC 296-24-47513 (4)(b) may be equipped to carry more than one LP-gas container, but the total capacity of LP-gas containers per work vehicle stored in garages shall not exceed 100 pounds of LP-gas.
 - (b) All container valves shall be closed when not in use.
- (8) Compressed gas.
 - (a) When using or transporting nitrogen cylinders, special compartments, racks, or blocking shall be provided to prevent cylinder movement.
 - (b) Regulators shall be removed or guarded before a cylinder is transported.
- (9) Support structures.
 - (a) No employee, or any material or equipment, shall be supported or permitted to be supported on any portion of a pole structure, platform, ladder, walkway or other elevated structure or aerial

WAC 296-32-220 (Cont.)

device unless the employer ensures that the support structure is first inspected by a competent person and it is determined to be strong, in good working condition and properly secured in place.

- (b) Workers shall not throw anything from pole to ground, from pole to pole or from ground to pole.
- (10) Power exposures.
- (a) The employer shall ensure that no employee approaches or takes any conductive object closer to any electrically energized overhead power lines and parts than prescribed in Table 1 unless:
 - (i) The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved shall be considered adequate insulation), or
 - (ii) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential, or
 - (iii) The power conductors and equipment are deenergized and grounded.
 - (b) While handling communication wires, metal sheaths, or communication equipment, contact shall be avoided with street lamp brackets, trolley span wires, power guys, transformer cases and any other power equipment that may be energized. The safest possible working position shall be assumed before starting work.
 - (c) Communication employees shall never work in the pole space on jointly used poles between normal primary and secondary attachments.
 - (d) Where a hazard of a power contact exists, due to use of long handled tools, proper rubber equipment shall be used.

TABLE 1
APPROACH DISTANCES TO EXPOSED ENERGIZED OVERHEAD POWER LINES AND PARTS

Voltage Range (phase to phase, RMS)	Approach Distance (inches)
Over 300 V and less	0
Over 300 V, not over 750 V	12
Over 750 V, not over 2kV	18
Over 2 kV, not over 15kV	24
Over 15kV, not over 37kV	36
Over 37kV, not over 87.5kV	42
Over 87.5kV, not over 121kV	48
Over 121kV, not over 140kV	54

⁽¹⁾Avoid contact

[Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-220, filed 05/09/01, effective 09/01/01. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-220, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-220, filed 12/30/76; Order 75-41, 296-32-220, filed 12/19/75.]

WAC 296-32-230 Training.

- (1) Employers shall provide training in the various precautions and safe practices described in this section and shall insure that employees do not engage in the activities to which this chapter applies until such

WAC 296-32-230 (Cont.)

employees have received proper training in the various precautions and safe practices required by this section. However, where the employer can demonstrate that an employee is already trained in the precautions and safe practices required by this section prior to their employment, training need not be provided to that employee in accordance with this section.

- (2) Where training is required, it shall consist of on-the-job training or classroom-type training or a combination of both.
- (3) The training program shall include a list of the subject courses and the types of personnel required to receive such instruction. A written description of the training program and a record of employees who have received such training shall be maintained for the duration of the employee's employment and shall be made available upon request to the director of the department of labor and industries, or his/her authorized representative.
- (4) Such training shall, where appropriate, include the following subjects:
 - (a) Recognition and avoidance of dangers relating to encounters with harmful substances, and animal, insect, or plant life.
 - (b) Procedures to be followed in emergency situations, and
 - (c) First aid training, including instruction in artificial respiration.
- (5) It shall be the responsibility of the employer to hold monthly safety meetings at practical points throughout the operation and insist upon employees attending said meetings. Minutes shall be kept of each safety meeting and retained for a period of one year.
- (6) It shall be the responsibility of management to develop and maintain a chemical hazard communication program as required by WAC 296-800-170, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

[Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-230, filed 05/09/01, effective 09/01/01. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-230, filed 7/20/94, effective 9/20/94; 89-11-035 (Order 89-03), § 296-32-230, filed 5/15/89, effective 6/30/89; Order 76-38, 296-32-230, filed 12/30/76; Order 75-41, § 296-32-230, filed 12/19/75.]

WAC 296-32-240 Employee protection in public work areas.

- (1)
 - (a) Before work begins in the vicinity of vehicular or pedestrian traffic that may endanger employees, traffic control signs, devices, and barriers must be positioned and used according to the requirements of chapter 296-155 WAC, Part E. When flaggers are used, employers, responsible contractors and/or project owners must comply with the requirements of WAC 296-155-305.
 - (b) During hours of darkness, warning lights must be prominently displayed and excavated areas must be enclosed with protective barricades.
- (2) When work exposes energized or moving parts that are normally protected, danger signs shall be displayed and barricades erected to warn other personnel in the area.
- (3) The employer shall insure that an employee finding any crossed or fallen wires which create or may create a hazardous situation at the work area:
 - (a) Remains on guard or adopts other adequate means to warn other employees of the danger, and
 - (b) Has the proper authority notified at the earliest practical moment.

[Statutory Authority: RCW 49.17.010, .040, .050. 01-04-090 (Order 00-03), § 296-32-240, filed 02/07/01, effective 02/07/01. Order 76-38, 296-32-240, filed 12/30/76; Order 75-41, § 296-32-240, filed 12/19/75.]

WAC 296-32-250 Tools and personal protective equipment--General.

- (1) Personal protective equipment, protective devices and special tools needed for the work of employees shall be provided and the employer shall ensure that they are used by employees.
 - (a) Before each day's use the employer shall ensure that these personal protective devices, tools, and equipment are carefully inspected by a competent person to ascertain that they are in good condition.
 - (b) Tools found to be defective shall be taken out of service.
 - (2) Head protection. Class B protective helmets shall be provided whenever there is exposure to overhead hazards and/or possible high voltage electrical contact.
 - (a) Employees working in areas where there is a possible danger of head injury from impact, falling or flying objects, shall be protected by protective helmets.
 - (b) Criteria for protective helmets.
 - (i) Protective helmets purchased after February 20, 1995, shall comply with ANSI Z89.1-1986, "American National Standard for Personnel Protection--Protective Headwear for Industrial Workers--Requirements," which is incorporated by reference, or shall be demonstrated to be equally effective.
 - (ii) Protective helmets purchased before February 20, 1995, shall comply with the ANSI standard "American National Standard Safety Requirements for Industrial Head Protection," ANSI Z89.1-1969, or shall be demonstrated by the employer to be equally effective.
 - (3) Eye protection. Protective eye and face equipment shall be required where there is a possibility of injury that can be prevented by such equipment. In such cases, employers shall make conveniently available a type of protector suitable for the work to be performed, and employees shall use such protectors.
- Note: See WAC 296-800-160 for additional personal protective equipment requirements.*
- (4) Tent heaters, torches and open flame. Open flames shall not be used within ground tents or on platforms within aerial tents unless:
 - (a) The tent covers are constructed of fire resistant materials, and
 - (b) Ventilation is provided to maintain safe oxygen levels and avoid harmful buildup of combustion products and combustible gases.
 - (5) Portable power equipment.
 - (a) All portable power equipment used in the telecommunications industry shall be grounded.
 - (b) Nominal 120V, or less, portable generators used for providing power at work locations do not require grounding if the output circuit is completely isolated from the frame of the unit.
 - (c) Grounding shall be omitted when using soldering irons, guns or wire-wrap tools on telecommunication circuits.

WAC 296-32-250 (Cont.)

- (6) Vehicle-mounted utility generators. Vehicle-mounted utility generators used for providing nominal 240V AC or less for powering portable tools and equipment need not be grounded to earth if all of the following conditions are met:
- (a) One side of the voltage source is solidly strapped to the metallic structure of the vehicle;
 - (b) Grounding-type outlets are used, with a “grounding” conductor between the outlet grounding terminal and the side of the voltage source that is strapped to the vehicle;
 - (c) All metallic encased tools and equipment that are powered from this system are equipped with three-wire cords and grounding-type attachment plugs, except as designated in subsection (7) of this section.
- (7) Portable lights, tools and appliances. When operated from commercial power such metal parts of these devices shall be grounded, unless these tools or appliances are protected by a system of double insulation, or its equivalent. Where such a system is employed, the equipment shall be distinctively marked to indicate double insulation.
- (8) Lead work. When operated from commercial power the metal housing of electric solder pots shall be grounded. Electric solder pots may be used with the power equipment described in this subsection, without a grounding conductor.

The employer shall ensure that wiping gloves or cloths and eye protection are used in lead wiping operations. A drip pan to catch hot lead drippings shall also be provided and used.

- (9) Fire extinguishers.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

- (a) Fire extinguishers shall be provided for the protection of both the building structure and the occupancy hazards contained therein.
- (b) Employees shall be familiar with the location and operation of fire extinguishers.
- (c) Any fire extinguishers showing defects shall be removed from service.
- (d) Fire extinguishers shall be thoroughly examined and/or recharged or repaired to insure operability and safety once every year.
- (e) Each fire extinguisher shall have a durable tag securely attached to show the maintenance or recharge date and the initials or signature of the person performing this service.

[Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-250, filed 05/09/01, effective 09/01/01. Statutory Authority: Chapter 49.17 RCW. 94-20-057 (Order 94-16), § 296-32-250, filed 9/30/94, effective 11/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 82-13-045 (Order 82-22), § 296-32-250, filed 6/11/82; Order 76-38, 296-32-250, filed 12/30/76; Order 75-41, § 296-32-250, filed 12/19/75.]

WAC 296-32-260 Rubber insulating equipment.

- (1) Rubber insulating equipment designed for the voltage levels to be encountered shall be provided and the employer shall ensure that they are used by employees as required by this section. The requirements of WAC 296-24-980, Electrical protective equipment, shall be followed except for Table A-6.
- (2) The employer is responsible for periodic retesting of all insulating gloves, blankets, and other rubber insulating equipment. This retesting shall be electrical, visual and mechanical. The following maximum retesting intervals shall apply:

WAC 296-32-260 (Cont.)

Gloves, Blankets and Other Insulating Equipment	Natural Rubber (Months)	Synthetic Rubber (Months)
New	12	18
Reissued	9	15

- (3) Protector for gloves. Approved protectors must be worn at all times over rubber gloves. Inner liners may be worn if desired.
- (4) Gloves and blankets shall be marked to indicate compliance with the retest schedule and shall be marked with the date the next test date is due. Any rubber gloves found to be defective shall be removed from service and marked as being defective.
- (5) Patching rubber goods is prohibited; rubber protective equipment shall not be vulcanized or patched.
- (6) Rubber gloves for workers. A pair of rubber gloves, specifically designed for the protection of workers, shall be assigned each worker when required to work on or be exposed to energized parts.

[Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-260, filed 05/09/01, effective 09/01/01. Statutory Authority: Statutory Authority: RCW 49.17.010, .040, .050. 99-17-094 (Order 99-01), § 296-32-260, filed 08/17/99, effective 12/01/99. Statutory Authority: Order 76-38, § 296-32-260, filed 12/30/76; Order 75-41, § 296-32-260, filed 12/19/75.]

WAC 296-32-270 Personal climbing equipment.

- (1) General. Safety belts and straps shall be provided and the employer shall ensure their use when work is performed at positions more than 4 feet above ground, on poles, and on towers, except as provided in WAC 296-32-340 (7)(8) of this chapter. No safety belts, safety straps or lanyards acquired after January 1, 1976, may be used unless they meet the tests set forth in chapter 296-45 WAC. The employer shall ensure that all safety belts and straps are inspected by a competent person prior to each day's use to determine that they are in safe working condition.
- (2) Telecommunication lineman's body belts, safety straps and lanyards, general requirements. Hardware for lineman's body belts, safety straps and lanyards shall be drop forged or pressed steel and shall have a corrosion resistant finish tested to meet the requirements of the American Society for Testing and Materials B117-64 (50-hour test).

Exception: Lineman's body belts shall be at least four inches in width.

- (3) Pole climbers.
 - (a) Pole climbers may not be used if the gaffs are less than 1-1/4 inches in length as measured on the underside of the gaff.
 - (b) The gaffs of pole climbers shall be covered with safety caps when not being used for their intended use.
 - (c) The employer shall ensure that pole climbers are inspected by a competent person for the following conditions: Fractured or cracked gaffs or leg irons, loose or dull gaffs, broken straps or buckles. If any of these conditions exist, the defect shall be corrected before the climbers are used.
 - (d) Pole climbers shall be inspected as required in this subsection before each day's use and a gaff cut-out test performed at least weekly when in use.

WAC 296-32-270 (Cont.)

- (e) Pole climbers shall not be worn when:
 - (i) Working in trees (specifically designed tree climbers shall be used for tree climbing),
 - (ii) Working on ladders,
 - (iii) Working in an aerial lift,
 - (iv) Driving a vehicle,
 - (v) Walking on rocky, hard, frozen, brushy or hilly terrain.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-270, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-270, filed 12/30/76; Order 75-41, 296-32-270, filed 12/19/75.]

WAC 296-32-280 Ladders.

- (1) The employer shall ensure that no employee nor any material or equipment shall be supported or permitted to be supported on any portion of a ladder unless it is first determined, by inspections and checks conducted by a competent person that such ladder is free of defects, in good condition and secured in place.
- (2) The spacing between steps or rungs permanently installed on poles and towers shall be no more than 18 inches (36 inches on any one side). This requirement also applies to fixed ladders on towers, when towers are so equipped. Spacing between steps shall be uniform above the initial unstepped section, except where working, standing, or access steps are required. Fixed ladder rungs and step rungs for poles and towers shall have a minimum diameter of 5/8 inch. Fixed ladder rungs shall have a minimum clear width of 12 inches. Steps for poles and towers shall have a minimum clear width of 4-1/2 inches. The spacing between detachable steps may not exceed 30 inches on any one side, and these steps shall be secured when in use.
- (3) After October 31, 1975, portable wood ladders intended for general use shall not be painted but may be coated with a translucent nonconductive coating. Portable wood ladders shall not be longitudinally reinforced with metal.
- (4) Portable wood ladders that are not being carried on vehicles and are not in active use shall be stored where they will not be exposed to the elements and where there is good ventilation.
- (5) Rolling ladders.
 - (a) Rolling ladders used in telecommunication centers shall have a width between the side rails, inside to inside, of at least 12 inches.
 - (b) Except in working spaces that are not a means of egress, the ladders shall have a minimum inside width, between the side rails, of at least eight inches.
- (6) Climbing ladders or stairways on scaffolds used for access and egress shall be affixed or built into the scaffold by proper design and engineering, and shall be so located that their use will not disturb the stability of the scaffold. The rungs of the climbing device shall be equally spaced, but may not be less than 12 inches nominal nor more than 16 inches nominal apart. Horizontal end rungs used for platform support may also be utilized as a climbing device if such rungs meet the spacing requirement of this subsection, and if clearance between the rung and the edge of the platform is sufficient to afford a secure handhold. If a portable ladder is affixed to the scaffold, it shall be securely attached and shall have rungs meeting the spacing requirements of this subsection. Clearance shall be provided in the back of the ladder of not less than 6 inches from center of rung to the nearest scaffold structural member.

WAC 296-32-280 (Cont.)

- (7) When a ladder is supported by an aerial strand, and ladder hooks or other supports are not being used, the ladder shall be extended at least 2 feet above the strand and shall be secured to it (e.g. lashed or held by a safety strap around the strand and ladder side rail). When a ladder is supported by a pole, it shall be securely lashed to the pole unless the ladder is specifically designed to prevent movement when used in this application.
- (8) Portable wood straight ladders, when in use, shall be equipped with safety shoes.
- (9) Ladders shall be inspected by a competent person prior to each use. Ladders which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "dangerous do not use."
[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-280, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-280, filed 12/30/76; Order 75-41, § 296-32-280, filed 12/19/75.]

WAC 296-32-290 Vehicle-mounted material handling devices and other mechanical equipment.

- (1) General.
 - (a) The employer shall ensure that visual inspections are made of the equipment by a competent person each day the equipment is to be used to ascertain that it is in good condition.
 - (b) The employer shall ensure that tests shall be made at the beginning of each shift by a competent person to insure the vehicle brakes and operating systems are in proper working condition.
- (2) Scrapers, loaders, dozers, graders and tractors.

All mobile, self-propelled scrapers, mobile front end loaders, mobile dozers, agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in telecommunications work shall have rollover protective structures that meet the requirements of WAC 296-155-950 through 296-155-965.
- (3) Aerial manlift equipment.
 - (a) These devices shall not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table 1 of this chapter.
 - (b) Only qualified drivers shall be permitted to operate aerial manlift equipment and shall possess a current motor vehicle operator's license.
 - (c) When performing work from aerial manlift equipment, the worker shall wear a safety belt attached to the boom.
 - (d) When any aerial manlift equipment is parked at the jobsite, the brakes shall be set. Wheel chocks shall be used to prevent uncontrolled movement. If equipped with outriggers, the outriggers shall be implanted on firm footing.
 - (e) Manufacturer's recommended maximum load limit shall be posted near each set of controls, kept in legible condition and the maximum load limit shall not be exceeded.
 - (f) Flashing warning lights shall be installed and maintained on all aerial manlift equipment used on public thoroughfares.

WAC 296-32-290 (Cont.)

- (4)
 - (a) The operation of all motor vehicles and trailers shall be in conformance with the motor vehicle laws, the general safety and health standards of the state of Washington and all local traffic ordinances.
 - (b) When it is necessary for the worker to work in the bucket at an elevated position with the vehicle in motion, there shall be direct communication between the worker and the vehicle operator.
- (5) Derrick trucks and similar equipment.
 - (a) This equipment shall not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table 1 of this chapter.
 - (b) When derricks are used to handle poles near energized power conductors, these operations shall comply with the requirements contained in WAC 296-32-220(10) and 296-32-330(11) of this chapter.
 - (c) Moving parts of equipment and machinery carried on or mounted on telecommunications line trucks shall be guarded. This may be done with barricades as specified in WAC 296-32-240(2) of this chapter.
 - (d) Derricks and the operation of derricks shall comply with the following requirements:
 - (i) Manufacturer's specifications, load ratings and instructions for derrick operation shall be strictly observed.
 - (ii) Rated load capacities and instructions related to derrick operation shall be conspicuously posted on a permanent weather-resistant plate or decal in a location on the derrick that is plainly visible to the derrick operator.
 - (iii) Prior to derrick operation the parking brake must be set and the stabilizers extended if the vehicle is so equipped. When the vehicle is situated on a grade, at least two wheels must be chocked on the downgrade side.
 - (iv) Only persons trained in the operation of the derrick shall be permitted to operate the derrick.
 - (v) Hand signals to derrick operators shall be those prescribed by ANSI B30.6-1969, "Safety Code for Derricks."
 - (vi) The employer shall ensure that the derrick and its associated equipment are inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records shall be maintained including the dates of inspections, and necessary repairs made.
 - (vii) Modifications or additions to the derrick and its associated equipment that alter its capacity or affect its safe operation shall be made only with written certification from the manufacturer, or other equivalent entity, such as a nationally recognized testing laboratory, that the modification results in the equipment being safe for its intended use. Such changes shall require the changing and posting of revised capacity and instruction decals or plates. These new ratings or limitations shall be as provided by the manufacturer or other equivalent entity.

WAC 296-32-290 (Cont.)

- (viii) Wire rope used with derricks shall be of improved plow steel or equivalent. Wire rope safety factors shall be in accordance with American National Standards Institute B30.6-1969.
- (ix) Wire rope shall be taken out of service, or the defective portion removed, when any of the following conditions exist:
 - (A) The rope strength has been significantly reduced due to corrosion, pitting, or excessive heat, or
 - (B) The thickness of the outer wires of the rope has been reduced to two-thirds or less of the original thickness, or
 - (C) There are more than six broken wires in any one rope lay, or
 - (D) There is excessive permanent distortion caused by kinking, crushing, or severe twisting of the rope.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-290, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-290, filed 12/30/76; Order 75-41, § 296-32-290, filed 12/19/75.]

WAC 296-32-300 Materials handling and storage.

- (1) Poles.
 - (a) When working with poles in piles or stacks, work shall be performed from the ends of the poles and precautions shall be taken for the safety of employees at the other end of the pole.
 - (b) During pole hauling operations, all loads shall be secured to prevent displacement. Lights, reflectors and/or flags shall be displayed on the end and sides of the load.
 - (c) The requirements for installation, removal, or other handling of poles in pole lines are prescribed in WAC 296-32-330 which pertains to overhead lines.
 - (d) In the case of hoisting machinery equipped with a positive stop load-holding device, it shall be permissible for the operator to leave their position at the controls (while a load is suspended) for the sole purpose of assisting in positioning the load prior to landing it.
 - (e) Prior to unloading steel, poles, crossarms, and similar material, the load shall be thoroughly examined to ascertain that the load has not shifted, that binders or stakes have not broken, and that the load is not otherwise hazardous to employees.
- (2) Cable reels. Cable reels and poles in storage shall be checked or otherwise restrained to prevent uncontrollable movement.
- (3) All tools and materials shall be stored in a safe and orderly manner.
- (4) Workers shall not carry loose materials, tools, or equipment on or in vehicles in a manner that would constitute a hazard.

- (5) All buildings, storage yards, equipment and other property shall be kept in a clean and orderly manner.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-300, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-300, filed 12/30/76; Order 75-41, § 296-32-300, filed 12/19/75.]

WAC 296-32-310 Cable fault locating and testing.

- (1) Employees involved in using high voltages to locate trouble or test cables shall be instructed in the precautions necessary for their own safety and the safety of other employees.
- (2) Before voltage is applied to equipment not isolated, all possible precautions shall be taken to insure that no employee can make contact with the energized conductors under test.
- (3) Only trained and authorized personnel shall repair and test medium and high voltage equipment.
[Order 76-38, § 296-32-310, filed 12/30/76; Order 75-41, § 296-32-310, filed 12/19/75.]

WAC 296-32-320 Grounding for employee protection--Pole lines.

- (1) Power conductors. Electric power conductors and equipment shall be considered as energized until the employee can determine that they are bonded to one of the grounds as listed in subsection (4) of this section.
- (2) Nonworking open wire. Nonworking open wire communications lines shall be bonded to one of the grounds listed in subsection (4) of this section.
- (3) Vertical power conduit, power ground wires and street light fixtures.
 - (a) Metal power conduit on joint use poles, exposed vertical power ground wires, and street light fixtures which are below communications attachments or less than 20 inches above these attachments, shall be considered energized and shall be tested for voltage unless the employee can visually determine that they are bonded to the communications suspension strand or cable sheath.
 - (b) If no hazardous voltage is shown by the voltage test, a temporary bond shall be placed between such street light fixture, exposed vertical power grounding conductor, or metallic power conduit and the communications cable strand. Temporary bonds used for this purpose shall have sufficient conductivity to carry at least 500 amperes for a period of one second without fusing.
- (4) Protective grounding. Acceptable grounds for protective grounding are as follows:
 - (a) A vertical ground wire which has been tested, found safe, and is connected to a power system multigrounded neutral or the grounded neutral of a power secondary system where there are at least three services connected;
 - (b) Communications cable sheath or shield and its supporting strand where the sheath or shield is:
 - (i) Bonded to an underground or buried cable which is connected to a central office ground, or
 - (ii) Bonded to an underground metallic piping system, or
 - (iii) Bonded to a power system multigrounded neutral or grounded neutral of a power secondary system which has at least three services connected;
 - (c) Guys which are bonded to the grounds specified in subdivisions (a) and (b) of this subsection and which have continuity uninterrupted by an insulator; and
 - (d) If all of the preceding grounds are not available, arrays of driven ground rods where the resultant resistance to ground will be low enough to eliminate danger to personnel or permit prompt operation of protective devices.

WAC 296-32-320 (Cont.)

- (5) Attaching and removing temporary bonds. When attaching grounds (bonds), the first attachment shall be made to the protective ground. When removing bonds, the connection to the line or equipment shall be removed first. Insulating gloves shall be worn during these operations.
- (6) Temporary grounding of suspension strand.
 - (a) The suspension strand shall be grounded to the existing grounds listed in subsection (4) of this section when being placed on jointly used poles.
 - (b) Where power crossings are encountered on nonjoint lines, the strand shall be bonded to an existing ground listed in subsection (4) of this section as close as possible to the crossing. This bonding is not required where crossings are made on a common crossing pole unless there is an upward change in grade at the pole.
 - (c) Where traveling roller-type bonds are used, they shall be restrained so as to avoid stressing the electrical connections.
 - (d) Bonds between the suspension strand and the existing ground shall be at least No. 6AWG copper.
 - (e) Temporary bonds shall be left in place until the strand has been tensioned, dead-ended, and permanently grounded.
 - (f) The requirements of subdivision (a) through (e) of this subsection do not apply to the installation of insulated strand.
- (7) Antenna work-radio transmitting stations 3-30 MHZ.
 - (a) Prior to grounding a radio transmitting station antenna, the employer shall insure that the rigger in charge:
 - (i) Prepares a danger tag signed with their signature,
 - (ii) Requests the transmitting technician to shutdown the transmitter and to ground the antenna with its grounding switch,
 - (iii) Is notified by the transmitting technician that the transmitter has been shutdown, and
 - (iv) Tags the antenna ground switch personally in the presence of the transmitting technician after the antenna has been grounded by the transmitting technician.
 - (b) Power shall not be applied to the antenna, nor shall the grounding switch be opened under any circumstances while the tag is affixed.
 - (c)
 - (i) Where no grounding switches are provided, grounding sticks shall be used, one on each side of line, and tags shall be placed on the grounding sticks, antenna switch, or plate power switch in a conspicuous place.
 - (ii) To further reduce excessive radio frequency pickup, ground sticks or short circuits shall be placed directly on the transmission lines near the transmitter in addition to the regular grounding switches.

WAC 296-32-320 (Cont.)

- (iii) In other cases, the antenna lines may be disconnected from ground and the transmitter to reduce pickup at the point in the field.
- (d) All radio frequency line wires shall be tested for pickup with an insulated probe before they are handled either with bare hands or with metal tools.
- (e) The employer shall insure that the transmitting technician warn the riggers about adjacent lines which are, or may become energized.
- (f) The employer shall insure that when antenna work has been completed, the rigger in charge of the job returns to the transmitter, notifies the transmitting technician in charge that work has been completed, and personally removes the tag from the antenna ground switch.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-320, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-320, filed 12/30/76; Order 75-41, § 296-32-320, filed 12/19/75.]

WAC 296-32-330 Overhead lines.

- (1) Handling suspension strand.
 - (a) The employer shall insure that when handling cable suspension strand which is being installed on poles carrying exposed energized power conductors, employees shall wear insulating gloves and shall avoid body contact with the strand until after it has been tensioned, dead-ended and permanently grounded.
 - (b) The strand shall be restrained against upward movement during installation:
 - (i) On joint-use poles, where there is an upward change in grade at the pole, and
 - (ii) On nonjoint-use poles, where the line crosses under energized power conductors.
- (2) Need for testing wood poles. Unless temporary guys or braces are attached, the following poles shall be tested in accordance with subsection (3) of this section and determined to be safe before employees are permitted to climb them:
 - (a) Dead-end poles, except properly braced or guyed “Y” or “T” cable junction poles,
 - (b) Straight line poles which are not storm guyed and where adjacent span lengths exceed 165 feet.
 - (c) Poles at which there is a downward change in grade and which are not guyed or braced corner poles or cable junction poles.
 - (d) Poles which support only telephone drop wire, and
 - (e) Poles which carry less than ten communication line wires. On joint use poles, one power line wire shall be considered as two communication wires for purposes of this subdivision (2)(e).
- (3) Methods for testing wood poles. The following method or an equivalent method shall be used for testing wood poles:

WAC 296-32-330 (Cont.)

- (a) Rap the pole sharply with a lineman's hammer, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound and/or a less pronounced hammer rebound. When decay pockets are indicated, the pole shall be considered unsafe.
 - (b) The pole shall be prodded as near the ground line as possible using a pole prod or a screwdriver with a single blade at least five inches long.
 - (c) If the pole is found unsafe, it shall be guyed or braced or supported in such a manner as to allow workers to safely perform their work.
- (4) Unsafe poles or structures.
 - (a) Poles or structures determined to be unsafe by test or observation may not be climbed until made safe by guying, bracing or other means.
 - (b) Poles determined to be unsafe to climb shall, until they are made safe, be marked in a conspicuous place to alert and warn all employees of the unsafe condition.
- (5) Test requirements for cable suspension strand.
 - (a) Before attaching a splicing platform to a cable suspension strand, the strand shall be tested and determined to have strength sufficient to support the weight of the platform and the employee. Where the strand crosses above power wires or railroad tracks it may not be tested but shall be inspected in accordance with subsection (6) of this section.
 - (b) The following method or an equivalent method shall be used for testing the strength of the strand: A rope, at least three-eighths inches in diameter, shall be thrown over the strand. On joint lines, the rope shall be passed over the strand using tree pruner handles or a wire raising tool. If two employees are present, both shall grip the double rope and slowly transfer their entire weight to the rope and attempt to raise themselves off the ground. If only one employee is present, one end of the rope which has been passed over the strand shall be tied to the bumper of the truck, or other equally secure anchorage. The employee then shall grasp the other end of the rope and attempt to raise himself off the ground.
- (6) Inspection of strand. Where strand passes over electric power wires or railroad tracks, it shall be inspected from an elevated working position at each pole supporting the span in question. The strand may not be used to support any splicing platform, scaffold or cable car, if any of the following conditions exist:
 - (a) Corrosion so that no galvanizing can be detected,
 - (b) One or more wires of the strand are broken,
 - (c) Worn spots, or
 - (d) Burn marks such as those caused by contact with electric power wires.
- (7) Outside work platforms. Unless railings are provided, safety straps and body belts shall be used while working on elevated work platforms such as aerial splicing platforms, pole platforms, ladder platforms and terminal balconies.

WAC 296-32-330 (Cont.)

- (8) Other elevated locations. Safety straps and body belts shall be worn when working at elevated positions on poles, towers or similar structures, which do not have guarded work areas.
- (9) Installing and removing wire and cable. Before installing or removing wire or cable, the pole or structure shall be guyed, braced, or otherwise supported, as necessary, to prevent failure of the pole or structure.
- (10) Avoiding contact with energized power conductors or equipment. When cranes, derricks, or other mechanized equipment are used for setting, moving, or removing poles, all necessary precautions shall be taken to avoid contact with energized power conductors or equipment.
- (11) Handling poles near energized power conductors.
 - (a) Joint use poles may not be set, moved, or removed where the nominal voltage of open electrical power conductors exceeds 34.5 kV phase to phase or 20 kV phase to ground.
 - (b) Poles that are to be placed, moved or removed during heavy rains, sleet or wet snow in joint lines carrying more than 8.7 kV phase to phase voltage or 5 kV phase to ground shall be guarded or otherwise prevented from direct contact with overhead energized power conductors.
 - (c)
 - (i) In joint lines where the power voltage is greater than 750 volts but less than 34.5 kV phase to phase or 20 kV phase to ground, wet poles being placed, moved or removed shall be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.
 - (ii) In joint lines where the power voltage is greater than 8.7 kV phase to phase or 5 kV phase to ground but less than 34.5 kV phase to phase or 20 kV phase to ground, dry poles being placed, moved, or removed shall be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.
 - (iii) Where wet or dry poles are being removed, insulation of the pole is not required if the pole is cut off 2 feet or more below the lowest power wire and also cut off near the ground line.
 - (d) Insulating gloves shall be worn when handling the pole with either hands or tools, when there exists a possibility that the pole may contact a power conductor. Where the voltage to ground of the power conductor exceeds 15 kV to ground, Class II gloves (as defined in ANSI J6.6-1971) shall be used. For voltages not exceeding 15 kV to ground, insulating gloves shall have a breakdown voltage of at least 17 kV.
 - (e) The guard or insulating material used to protect the pole shall meet the appropriate 3 minute proof test voltage requirements contained in the ANSI J6.4-1971.
 - (f) When there exists a possibility of contact between the pole or the vehicle-mounted equipment used to handle the pole, and an energized power conductor, the following precautions shall be observed:
 - (i) When on the vehicle which carries the derrick, avoid all contact with the ground, with persons standing on the ground, and with all grounded objects such as guys, tree limbs, or metal sign posts. To the extent feasible, remain on the vehicle as long as the possibility of contact exists.
 - (ii) When it is necessary to leave the vehicle, step onto an insulating blanket and break all contact with the vehicle before stepping off the blanket and onto the ground. As a last resort, if a blanket is not available, the employee may jump cleanly from the vehicle.

WAC 296-32-330 (Cont.)

- (iii) When it is necessary to enter the vehicle, first step onto an insulating blanket and break all contact with the ground, grounded objects and other persons before touching the truck or derrick.
- (12) Working position on poles. Climbing and working are prohibited above the level of the lowest electric power conductor on the pole (exclusive of vertical runs and street light wiring), except:
 - (a) Where communications facilities are attached above the electric power conductors, and a rigid fixed barrier is installed between the electric power facility and the communications facility, or
 - (b) Where the electric power conductors are cabled secondary service drops carrying less than 300 volts to ground and are attached 40 inches or more below the communications conductors or cables.
- (13) Metal tapes and ropes.
 - (a) Metal measuring tapes, metal measuring ropes, or tapes containing conductive strands shall not be used when working near exposed energized parts.
 - (b) Where it is necessary to measure clearances from energized parts, only nonconductive devices shall be used.

[Order 76-38, § 296-32-330, filed 12/30/76; Order 75-41, § 296-32-330, filed 12/19/75.]

WAC 296-32-340 Underground lines and cable vaults. The provisions of this section apply to the guarding of manholes and street openings, and to the ventilation and testing for gas in manholes and unvented vaults, where telecommunications field work is performed on or with underground lines.

- (1) Guarding manholes and street openings.
 - (a) When covers of manholes or vaults are removed, the opening shall be promptly guarded by a railing, temporary cover, or other acceptable temporary barrier to prevent an accidental fall through the opening and to protect employees working in the manhole from foreign objects entering the manhole.
 - (b) When work is to be performed on underground plant, the immediate foreman in charge and the craftsman assigned to do the work shall make a complete evaluation of the work location in regard to the hazards that are created or that could exist prior to beginning the work in underground plant.
 - (c) The immediate foreman and the craftsman responsible for the job completion shall be in agreement of the proper method of eliminating or reducing any hazards that are present or could be caused by the location of the work site, before the job proceeds.
- (2) Requirements prior to entry of manholes and unvented vaults.
 - (a) The internal atmosphere shall be tested for combustible gas.
 - (b) Mechanical forced air ventilation shall be in operation at all times when workers are required to be in the manhole.
 - (c) The mechanical forced air equipment provided shall be of a quantity to replace the exhausted air and shall be tempered when necessary.

WAC 296-32-340 (Cont.)

- (d) Ventilation equipment shall be designed in such a manner that workers will not be subjected to excessive air velocities.
- (3) Joint power and telecommunication manholes. While work is being performed in a manhole occupied jointly by an electric utility and a telecommunication utility, an employee with basic first aid training shall be available in the immediate vicinity to render emergency assistance as required. This employee is not to be precluded from occasionally entering a manhole to provide assistance other than in an emergency. The requirement of WAC 296-32-340(3) does not preclude a qualified employee, working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.
- (4) Ladders.
 - (a) Ladders shall be used to enter and exit manholes exceeding four feet in depth.
 - (b) Metal manhole ladders shall be free of structural defects and free of accident hazards such as sharp edges and burrs. The metal shall be protected against corrosion unless inherently corrosion-resistant.
 - (c) These ladders may be designed with parallel side rails, or with side rails varying uniformly in separation along the length (tapered) or with side rails flaring at the base to increase stability.
 - (d) The spacing of rungs or steps shall be on 12-inch centers.
 - (e) Connections between rungs or steps and side rails shall be constructed to ensure rigidity as well as strength.
 - (f) Rungs and steps shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping.
 - (g) Ladder hardware shall meet the ladder's component parts and shall be of a material that is protected against corrosion unless inherently corrosion-resistant. Metals shall be so selected as to avoid excessive galvanic action.
- (5) Flames. When open flames must be used in manholes, the following precautions shall be taken to protect against the accumulation of combustible gas:
 - (a) A test for combustible gas shall be made immediately before using any open flame device, and
 - (b) A fuel tank (e.g., acetylene) may not be in the manhole unless in actual use.

[Order 76-38, § 296-32-340, filed 12/30/76; Order 75-41, § 296-32-340, filed 12/19/75.]

WAC 296-32-350 Microwave transmission.

- (1) Eye protection. Employers shall insure that employees do not look into an open waveguide which is connected to an energized source of microwave radiation.
- (2) Hazardous area. Accessible areas associated with microwave communication systems where the electromagnetic radiation level exceeds the radiation protection guide given in WAC 296-62-09005 shall be posted as described in that section. The lower half of the warning symbol shall include the following:

WAC 296-32-350 (Cont.)

Radiation in this area may exceed hazard limitations and special precautions are required. Obtain specific instruction before entering.

- (3) Protective measures. When an employee works in an area where the electromagnetic radiation exceeds the radiation protection guide, the employer shall institute measures that insure that the employee's exposure is not greater than that permitted by the radiation guide. Such measures shall include, but not be limited to those of an administrative or engineering nature or those involving personal protective equipment.
[Order 76-38, § 296-32-350, filed 12/30/76; Order 75-41, § 296-32-350, filed 12/19/75.]

WAC 296-32-360 Tree trimming--Electrical hazards.

- (1) General.
- (a) Employees engaged in pruning, trimming, removing, or clearing trees from lines shall be required to consider all overhead and underground electrical power conductors to be energized with potentially fatal voltages, never to be touched (contacted) either directly or indirectly.
 - (b) Employees engaged in line-clearing operations shall be instructed that:
 - (i) A direct contact is made when any part of the body touches or contacts an energized conductor, or other energized electrical fixture or apparatus.
 - (ii) An indirect contact is made when any part of the body touches any object in contact with an energized electrical conductor, or other energized fixture or apparatus.
 - (iii) An indirect contact can be made through conductive tools, tree branches, truck equipment, or other objects, or as a result of communications wires, cables, fences, or guy wires being accidentally energized.
 - (iv) Electric shock will occur when an employee, by either direct or indirect contact with an energized conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors will also cause electric shock which may result in serious or fatal injury.
 - (c) Before any work is performed in proximity to energized conductors, the system operator/owner of the energized conductors shall be contacted to ascertain if they know of any hazards associated with the conductors which may not be readily apparent. This rule does not apply when operations are performed by the system operator/owner.
- (2) Working in proximity to electrical hazards.
- (a) Employers shall ensure that a close inspection is made by the employee and by the crewleader or supervisor in charge before climbing, entering, or working around any tree, to determine whether an electrical power conductor passes through the tree, or passes within reaching distance of an employee working in the tree. If any of these conditions exist either directly or indirectly, an electrical hazard shall be considered to exist unless the system operator/owner has caused the hazard to be removed by deenergizing the lines, or installing protective equipment.
 - (b) Only employees or trainees, familiar with the special techniques and hazards involved in line clearance, shall be permitted to perform the work if it is found that an electrical hazard exists.

WAC 296-32-360 (Cont.)

- (c) During all tree working operations aloft where an electrical hazard of more than 750 volts exists, there shall be a second employee or trainee qualified in line clearance tree trimming within normal voice communication.
- (d) Where tree work is performed by employees qualified in line-clearance tree trimming and trainees qualified in line-clearance tree trimming, the clearances from energized conductors given in Table 2 shall apply.

TABLE 2
Minimum Working Distances From Energized Conductors For Line-Clearance Tree Trimmers and Line-Clearance Tree-Trimmer Trainees

Voltage Range (Phase to Phase) (kilovolts)	Minimum Working Distance
2.1 to 15.0	2 ft. 0 in.
15.1 to 35.0	2 ft. 4 in.
35.1 to 46.0	2 ft. 6 in.
46.1 to 72.5	3 ft. 4 in.
72.6 to 121.0	3 ft. 4 in.
138.0 to 145.0	3 ft. 6 in.
161.0 to 169.0	3 ft. 8 in.
230.0 to 242.0	5 ft. 0 in.
345.0 to 362.0	7 ft. 0 in.
500.0 to 552.0	11 ft. 0 in.
700.0 to 765.0	15 ft. 0 in.

- (e) Branches hanging on an energized conductor may only be removed using insulated equipment by a qualified electrical worker.
 - (f) Rubber footwear, including lineman's overshoes, shall not be considered as providing any measure of safety from electrical hazards.
 - (g) Ladders, platforms, and aerial devices, including insulated aerial devices, shall not be brought in contact with an electrical conductor. Reliance shall not be placed on their dielectric capabilities.
 - (h) When an aerial lift device contacts an electrical conductor, the truck supporting the aerial lift device shall be considered as energized.
- (3) Storm work and emergency conditions.
- (a) Since storm work and emergency conditions create special hazards, only authorized representatives of the electric utility system operator/owner and not telecommunication workers may perform tree work in these situations where energized electrical power conductors are involved.
 - (b) When an emergency condition develops due to tree operations, work shall be suspended and the system operator/owner shall be notified immediately.

[Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-360, filed 7/20/94, effective 9/20/94; Order 76-38, § 296-32-360, filed 12/30/76; Order 75-41, 296-32-360, filed 12/19/75.]

WAC 296-32-370 Buried facilities--Communications lines and power lines in the same trench.

[Reserved.]